Claims

1. Data recording device comprising at least one electrically conducting microtip (1) having an end (2) designed to be brought into electric contact with a recording medium (3), the microtip (1) comprising a longitudinal conducting core (4) having a substantially constant cross-section, device characterized in that the microtip (1) is surrounded by a sheath (5) made of non-conducting material, so that the free ends of the core (4) and of the sheath (5) are at the same level at the end (2) of the microtip.

2. Device according to claim 1, characterized in that the sheath (5) is made of insulating material.

3. Device according to claim 1, characterized in that the sheath (5) is made of material having a low conductivity.

4. Device according to any one of the claims 1 to 3, characterized in that the sheath (5) has a cross-section that decreases in the direction of the end (2) of the microtip (1).

5. Device according to claim 4, characterized in that the sheath (5) comprises a truncated-cone-shaped part.

6. Device according to any one of the claims 1 to 5, characterized in that the core (4) is formed by a carbon nanotube (17).

7. Device according to any one of the claims 1 to 6, characterized in that it comprises a multitude of microtips (1) arranged as a lattice, the ends (2) thereof generating a substantially flat common surface.

8. Device according to claim 7, characterized in that it is integrated in a dustproof chip (7) also containing the recording medium (3) and designed to communicate with a memory reader by means of a plurality of electric contacts (8) arranged outside the chip (7).

9. Device according to any one of the claims 1 to 8, characterized in that the core (4) is securely affixed to a substrate (6) by means of a conducting track (12).

10. Device according to claim 9, characterized in that the substrate (6) has a substantially lower conductivity than the conducting track (12).

11. Method for production of a data recording device according to any one of the claims 1 to 10, characterized in that it comprises an abrasion step so that the free ends of the core (4) and of the sheath (5) are at the same level at the end (2) of the microtip (1).

12. Method for production according to claim 11, characterized in that the abrasion step is performed by mechano-chemical planarization.

13. Method for production according to one of the claims 11 and 12, characterized in that it comprises, before the abrasion step,

- deposition of a layer (9) of conducting material on a substrate (6),
- etching of the conducting material, through a mask, so as to form at least one pillar (10) designed to form the core (4) of a microtip (1),
- deposition, at least on the substrate (6), of a layer (11) of the non-conducting material designed to constitute the sheath (5),

and, after the abrasion step, etching of the non-conducting material so as to delineate the sheath (5) laterally.

14. Method for production according to one of the claims 11 and 12, characterized in that it comprises, before the abrasion step,

- deposition of a layer (13) of non-conducting material designed to constitute the sheath (5) on a substrate (6),
- etching of pass-through holes (14) in the layer (13),
- deposition of a material (16) at least on the walls and the bottom of each hole (14),
- removal of the material (16) from the bottom of each hole (14) by anisotropic etching,
- deposition of the material designed to form the core (4) in the holes (14),

and, after the abrasion step, etching of the layer (13) so as to delineate the sheath (5) laterally.